

**REMARKS**

The Amendment, filed in response to the Office Action mailed August 20, 2008, is believed to be fully responsive to each and all issues raised in the Action. A favorable reconsideration on the merits is respectfully requested.

**Claim Status**

It is noted that the Action indicates claims 1-12 are pending in the application, of which claims 9 and 12 are withdrawn and claims 1-8, 10, and 11 are considered on the merits. Claims 1-7, 10 and 11 are rejected and claim 8 is objected to, but is indicated to be allowable if rewritten into an independent form.

However, Applicants respectfully submit that a Preliminary Amendment was filed on December 23, 2005 when the instant application was filed, wherein claims 1-9 and 11 were amended, claim 10 was canceled, and new claim 12 was added.

It appears to Applicants that the rejections raised in the August 20, 2008 Action are based on the original claims, before being preliminarily amended. Applicants note that the Office fails to discuss the limitations recited in the amended claims presented in the December 23, 2005 Preliminary Amendment. Therefore, Applicants respectfully request that the Office clarifies it in a next Action and further request that a next Action, if any, be not made final.

The following arguments and discussions are based on the claims as amended in the Preliminary Amendment filed December 23, 2005 and currently presented in the instant Amendment.

In the current Amendment, claim 3 is amended to more clearly set forth the subject matter of the present application.

### **Response to Claim Rejections Under 35 U.S.C. § 102**

Claims 1-7, 10-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Majumdar *et al* (USP 6,682,051) (“Majumdar”). Majumdar is relied upon to teach the heterojunction structure of claims 1-7, and a nano-device or array containing the heterojunction structure of claim 1 and a nano-system containing the nano-device array.

Applicants respectfully traverse.

The present invention, as currently presented, is directed to a nano-device comprising a p-n heterojunction structure of a p-type semiconductor thin film and an n-type ZnO-based nanorod epitaxially grown thereon, wherein a free space around the portions other than the tip portions of the ZnO nanorods grown on the semiconductor thin film is filled with an insulating material.

The p-n heterojunction structure of the subject nano-device is different from the nanowire disclosed in Majumdar in that the structure of the subject nano-device consists of a p-type semiconductor thin film and an n-type ZnO nanorod grown on the p-type semiconductor thin film, whereas Majumdar is drawn to a coaxial heterostructure nanowire and a longitudinal heterostructure nanowire (see Figs. 2 to 11, 15, 16, etc.) wherein the junction between an n-type semiconductor and a p-type semiconductor presents inside the nanowire structure (e.g., 18 in Fig. 2 and 24 in Fig. 3).

It is noted that Majumdar depicts a structure having a thin film and a nanorod grown thereon in Figs. 25 and 43. However, the thin film (202 and 334 in Figs. 25 and 43, respectively)

is not a p-type semiconductor for forming a heterojunction with an n-type semiconductor but merely a substrate.

Therefore, Majumdar fails to teach all and every element of claim 1 and its dependent claims, and thus the rejections are believed to be unsustainable. Withdrawal is respectfully requested.

### CONCLUSION

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number **202-775-7588**.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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WASHINGTON OFFICE

**23373**

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